

B.S. in COMPUTER AND INFORMATION SCIENCE (120 CREDITS) DATE
Concentrations: Computer Science (CIS-CS), Information Systems (CIS-INSY), and Game Design (CIS-GD)

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Curriculum Sheet for **Fall 2018** Catalog
MATHEMATICS and SCIENCE (26)

DEARBORN DISCOVERY CORE 21

WRITTEN AND ORAL COMM. (6 credits)

Composition Placement Exam required

COMP 105 (3) and

COMP 270 (3)

Both required if not taken to fulfill DDC Written and Oral Communication

HUMANITIES AND THE ARTS (6 credits)

See DDC approved list in Degree Works or

[HTTPS://APP.SMARTSHEET.COM/B/PUBLISH?EQBCT=](https://app.smartsheet.com/b/publish?EQBCT=DAFF687F800B4FE89910A9CEA66B1627)

[DAFF687F800B4FE89910A9CEA66B1627](https://app.smartsheet.com/b/publish?EQBCT=DAFF687F800B4FE89910A9CEA66B1627)

SOCIAL AND BEH. ANALYSIS (9 credits)

ECON 201 or ECON 202 (3) is **REQUIRED**

CIS-INSY students, also take

OB 354 (3) *Organizational Behavior*

If not taken in fulfillment of DDC Soc. and Beh. Analysis

Other credits (9 cr. total required in this category) must be chosen from DDC approved list in Degree Works or

[HTTPS://APP.SMARTSHEET.COM/B/PUBLISH?EQBCT=](https://app.smartsheet.com/b/publish?EQBCT=DAFF687F800B4FE89910A9CEA66B1627)

[DAFF687F800B4FE89910A9CEA66B1627](https://app.smartsheet.com/b/publish?EQBCT=DAFF687F800B4FE89910A9CEA66B1627)

Important DDC Notes:

DDC requirements apply to Freshmen admitted fall 2015 and later, and to Transfers admitted fall 2017 and later.

Many DDC courses fulfill multiple categories. However, a single DDC course may be used for a **maximum of three** DDC categories

CIS students **MUST** graduate with a minimum **120 credits**

**** Beware NO-CREDIT courses****

NO-CREDIT listed at end of CECS Handbook:

<https://umich.app.box.com/s/6a5c4j9hwlcetnppzy7o2xjmvlrutumvoj>

MATHEMATICS & STATISTICS (18)

(Fulfills DDC Quant. Thinking)

MATH 115 (4) Calculus I

MATH 116 (4) Calculus II

CIS 275 (4) Discrete Structures I

IMSE 317 (3) Probability/Statistics

MATH 227 (3) Linear Algebra

LABORATORY SCIENCE SEQUENCE (8)

(Fulfills DDC Natural Sciences)

Two courses, 8 credits, in a sequence from:

BIOL 130 (4) and BIOL 140 (4)

or CHEM 134 or 144 (4) and CHEM 136 (4)

or GEOL 118 (4) and GEOL 218 (4)

or PHYS 125 (4) and PHYS 126 (4)**

or PHYS 150 (4) and PHYS 151 (4)**

**Please note that if you are in the CIS-GD concentration, you must include either PHYS 125 or PHYS 150 as one of your science courses.

CIS COURSES and ELECTIVES (73)

CIS CORE (28)

CIS 150 (4) *Computer Science I*

CIS 200 (4) *Computer Science II*

CIS 310 (4) *Computer Organization and Assembly Language*

CIS 350 (4) *Data Structures*

CIS 375 (4) *Software Engineering I*

(Fulfills DDC Upper-Level Writing)

CIS 427 (4) *Computer Networks and Distributed Systems*

CIS 450 (4) *Operating Systems*

Choose ONLY one concentration

CIS-CS Concentration (41)

SCIENCE COURSE (4) ^

(Choose from list provided on page 2)

CIS 306 (4) *Discrete Structures II*

Take one of the following three courses:

CIS 296 (3) *Java Programming*, or

CIS 297 (3) *Introduction to C#*, or

CIS 298 (3) *Introduction to Python*

Take one of the following two courses:

CIS 405 (3) *Algorithm Analysis and Design*

CIS 479 (3) *Artificial Intelligence*

Take two intersections courses (6): e.g.,

CIS 479, ENGR 400, ENT 400 or IMSE

421. ^^ If CIS 479 is selected above, it can

also count as an intersections course and

an additional technical elective is required.

Take courses totaling 21 credits from the

APPROVED LIST OF ELECTIVES.

CIS-INSY Concentration (41)

ACC 298 (3) *Accounting I*

IMSE 3005 (4) *Operations Research*

CIS 421 (4) *Database Systems*

CIS 425 (4) *Information Systems*

CIS 476 (3) *Software Architecture and Design Patterns*

Take one of the following three courses (3):

CIS 296 (3) *Java Programming*, or

CIS 297 (3) *Introduction to C#*, or

CIS 298 (3) *Introduction to Python*

Take two intersections courses (6): e.g., CIS

479, ENGR 400, ENT 400, IMSE 421

Take courses totaling 14 credits from the

APPROVED LIST OF ELECTIVES.

CIS-GD Concentration REQUIRED (41)

SCIENCE COURSE (4)^

(Choose from list provided on page 2)

CIS 297 (3) *Introduction to C#*

CIS 306 (4) *Discrete Structures II*

CIS 451 (3) *Computer Graphics*

CIS 452 (3) *Information Visualization and Multimedia Gaming*

CIS 479 (3) *Artificial Intelligence*

CIS 487 (3) *Computer Game Design and Implementation I*

CIS 488 (3) *Computer Game Design and Implementation II*

Take one intersections courses (3): e.g., ENGR 400, ENT 400, or IMSE 421

Take courses totaling 12 credits from the

APPROVED LIST ELECTIVES

CIS CAPSTONE (4)

CIS 4951 (2) *Design Seminar I*

CIS 4952 (2) *Design Seminar II*

(Fulfills DDC Capstone & Critical Creative Thinking)

^CIS-CS and CIS-GD Concentrations ADDITIONAL SCIENCE COURSE (4)

Four additional science credit hours from:

ASTRO 130/131 [=old PHYS 130/131]

BIOL 130 or BIOL 140

CHEM 134 or CHEM 144

CHEM 136

CHEM 225 or CHEM 226 or CHEM 227

GEOL 118 or GEOL 218

PHYS 125 or PHYS 150

PHYS 126 or PHYS 151

Credit for only one course in each of the following combinations:

- (CHEM 144 or CHEM 134),
- (PHYS 125 or PHYS 150), and
- (PHYS 126 or PHYS 151]

APPROVED LIST OF ELECTIVES

CIS 285 (3) *Software Engineering Tools*

CIS 316 (3) *Practical Aspects of Computer Security*

CIS 376 (4) *Software Engineering II*

CIS 381 (3) *Industrial Robotics*

CIS 387 (4) *Digital Forensics I*

CIS 400 (4) *Programming Languages*

CIS 405 (3) *Algorithm Analysis & Design*

CIS 421 (4) *Database Systems*

CIS 423 (3) *Decision Support & Expert Systems*

CIS 425 (4) *Information Systems*

CIS 435 (3) *Web Technology*

CIS 436 (3) *Mobile Application Design & Implementation*

CIS 437 (3) *Advanced Networking*

CIS 447 (3) *Computer and Network Security*

CIS 451 (3) *Computer Graphics*

CIS 452 (3) *Computer Animation*

CIS 467 (3) *Digital Forensics II*

CIS 474 (3) *Compiler Design*

CIS 476 (3) *Software Architecture & Design Patterns*

CIS 479 (3) *Artificial Intelligence*

CIS 481 (3) *Computational Learning*

CIS 487 (3) *Computer Game Design & Implementation I*

CIS 488 (3) *Computer Game Design & Implementation II*

CCM 404 (3) *Dynamical Systems*

CCM 472 (3) *Numerical Analysis*

CCM 473 (3) *Matrix Computation*

ENGR 399 (1) *Prof Pract Engr & CS*

ENGR 400 (3) *Applied Business Techniques*

ENGR 492 (1-3) *Expr Hnrs Dir Rsrch*

ENGR 493 (1-3) *Expr Hnrs Dir Dsgn*

ENT 400 (3) *Introduction to Entrepreneurship*

GENERAL ELECTIVE: Any 100 to 400 level course with no more than 6 credits, as needed to get a minimum of 120 credits for graduation.